PART II

TOBACCO PROMOTION AND ITS EFFECTS

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5 *Tobacco marketing, advertising and sponsorship*

5.1 *Marketing methods*

"These marketing methods include those which focus on:

* *The ..... product itself: over eighty cigarette brands or brand variants ....."*

* *The product's availability and accessibility: ..... some 13,500 (outlets) in all.*

* *The tobacco retailer: ..... the retailer is given incentives to promote new brands.*

* *The brand name and the packaging: brand names on packets, reinforced by the brand colours, logo and pack design, are reminders of and links to the images placed in the minds of potential purchasers by tobacco advertising and sponsorship over many years" (TSBR p23).*

These same criticisms could equally well be attached to a vast range of freely available, mass market, consumer goods.

5.2 *Advertising*

"These companies (Rothmans and Wills ..... and the Continental Cigar Company) advertise their products through several media and in a number of ways:

* *The launching of new tobacco products*

* *Marketing campaigns*

* *Point of sale advertising*

* *Advertising in magazines*

* *Tobacco advertising in newspapers" (TSBR p24-25).*

Again all of these marketing activities are quite standard procedure and are applied equally to the marketing and sale of a whole range of product categories; from a new house costing $250,000 down to a 50 cent ball point pen.

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5.3 *Sponsorship advertising*

*"A Royal Commission has ruled, "sponsorship in all its forms is a mode of advertising". Tobacco advertising by sponsorship links the tobacco brand name with **healthy** (emphasis added) (example, cricket), **exciting** (emphasis added) (motorsport), and **prestigious** (emphasis added) (theatre, fashion) activities ....." (TSBR p25)*

Despite the Royal Commission's stated view that sponsorship is a mode of advertising it has been conclusively shown elsewhere in this review (Appendix C and Review of TSBR Section 6.4) that advertising of tobacco products - whether or not such advertising has "healthy", "exciting", "prestigious" or any other connotations - does not work to increase aggregate demand for the product, nor to encourage smoking initiation. It follows that if conventional forms of advertising do not perform these functions, peripheral techniques, such as sponsorship, will have no effect either.

"Wills is a corporate name but is only advertised on New Zealand television when cricket from Pakistan is shown - Wills is a brand name there". (TSBR p25)

Wills is a company name. It is irrelevant that the television transmission comes from Pakistan since there is no brand name "Wills" on sale in New Zealand.

Rothmans is a corporate name and a brand name.

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6 *Tobacco advertising and promotion - its effects*

The commentary on this chapter will demonstrate that the Board has consistently refused to take into account the worldwide corpus of independent research conclusions on, inter alia:

- the complexities of the role of advertising in general;
- how advertising operates in "mature", as opposed to developing, markets;
- children's response to advertising.

A careful study of the appraisal prepared by LW Hagan and D Martin of MH Gamma Consulting Ltd (see Appendix C) will show that this and subsequent chapters of the TSB report are full of untenable assumptions, unusable and misleading data, faulty statistical methods, errors and contradictions. Specifically Hagan and Martin conclude that:

i) "The authors of the report have made some fundamental assumptions about how advertising works. These assumptions are almost all demonstrably wrong.

ii) "The report uses a great deal of market survey data to justify the conclusions reached. Market survey data covering tobacco consumption is always prone to very considerable error. This is a matter of fact not opinion. The large error to which the data is subject invalidates all conclusions drawn from this source.

iii) "The report uses tobacco consumption data in a selective and partial manner.

iv) "The report bases many of its judgements on a small scale literature review which leaves out of consideration some of the most important contributions to the debate. Crucially, the report does not include mention of previous literature reviews. This is a serious omission.

v) "The report contains a large number of what can only be called mistakes, of various types, ranging from the evident lack of appreciation of simple statistical practices, to the inclusion in the report of contradictory statements.

"**Individually these errors invalidate large sections of the TSB report. Collectively they mean that none of the report's conclusions can be regarded as reasonable basis for public policy decision making** (emphasis added).

"Despite the innumerable flaws which render the conclusions of the TSB report quite untenable, and therefore unusable from a policy making standpoint, the authors have managed to assemble a useful database. Some of the TSB data, when used with conventional statistical techniques (as opposed to the unconventional and incorrect techniques used by the TSB report's authors) can be used to provide useful and realistic conclusions.

"As part of this appraisal of the TSB report a re-analysis of the TSB data has been undertaken. This re-analysis provides firm evidence that:

i) **"Advertising bans and restrictions have little or no impact on the consumption of tobacco products.**

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ii) **"Advertising bans do impede the growth of the market share of filter cigarettes (and hence probably also the growth of low tar cigarette types)"** (emphasis added).

"These conclusions are broadly in line with the results of literature reviews undertaken by independent Government agencies and academics who have reviewed the evidence relating to the impact of advertising in general terms and of tobacco advertising in particular.

"To conclude, the TSB report is an ambitious attempt at producing a definitive answer to the question of what impact tobacco advertising has on tobacco consumption.

"Unfortunately the report is riddled with untenable assumptions, contradictions and errors. Conclusions are built upon the shifting sands of faulty data analysed by faulty statistical methods" (Appendix C, Summary, p2-3).

6.1 *Viewpoints - the other side of the denial coin*

6.1.1 *Questions regarding tobacco industry advertising practices*

Why do monopolies advertise?

"If such monopolies advertise, then it must be (emphasis added) to expand market size (total industry sales)". (TSBR p28)

No evidence is put forward to support this massively broad claim other than table 6.1.1 (TSBR p29) showing the large (but not complete) market share of monopolies in these countries. No reference is made to the very small absolute amounts spent on advertising in these countries. No reference is made to the obvious desire of monopolies to keep import sales down to protect their market share or to announce to consumers new, perhaps higher margin, products and so on (Appendix C, MH Gamma p6-7).

Why spend so much?

"In the United States in 1987, manufacturers spent $1.66 billion on advertising tobacco. It is inconceivable (emphasis added) that promotion on this scale has no effect on total sales".

No evidence is put forward to support this subjective claim that the tobacco advertising expenditure in the USA must influence sales in total. The use of the word "inconceivable" without such supporting evidence is inappropriate in a supposed serious appraisal of this subject.

"Commonsense (and empirical evidence) would argue that when soap manufacturers promote many different brands of soap, they also promote overall soap sales ....." (TSBR p29).

Only one study, much criticised in the literature, is put forward to support this argument. Grabowski in 1976 used different advertising data and found no impact of advertising on total demand. There is a great deal of evidence (nowhere mentioned in the TSB report, but extensively explained in Appendix C, p37-43) to support the view that advertising expenditure is unlikely to influence the total size of large mature markets.

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As a further example, the US Federal Trade Commission (USFTC) Bureau of Consumer Protection:

> "We reviewed the most important of these studies as well as other reports that survey this literature. **The large majority of such studies found little or no effect of advertising on total industry demand"** (emphasis added).

And again a review of the literature relating to the impact of advertising in the alcohol market by a researcher from the Addiction Research Foundation in Toronto found that:

> "The evidence indicates that advertising bans do not reduce alcohol sales, total advertising expenditures have no reliable correlation with sales of alcoholic beverages, **and that experimental studies typically show no effect of advertising on actual consumption"** (emphasis added). (Appendix C, MH Gamma, p8)

From these, and from the arguments put forward by MH Gamma Consulting Ltd, it is clear that the use of little more than the Comanor and Wilson work as "evidence" constitutes a serious flaw in the report and leads to conclusions being drawn which are the reverse of those drawn by larger, more adequate and more recent reviews of the evidence.

Why use themes of universal appeal?

"The argument that advertising affects brand share only is a reasonable one when applied to a limited and defined market, such as motor oil for cars, but when addictive tobacco products are advertised to all, using themes of near universal appeal, the possibility ... could well be (emphasis added) an increase in market size" (TSBR p29).

The Board's opinion expressed here is in direct contradiction to the arguments adduced by MH Gamma Consulting Ltd (Appendix C, p37-43) which position tobacco products firmly in the category of "mature" markets.

"To comply [with the industry's advertising code] a cigarette advertisement must only be seen by smoker ..." (TSBR p29).

To infer (as this paragraph does) that a tobacco advertisement placed in, for example, the New Zealand Listener will inevitably, in itself, influence current smokers to increase their overall cigarette consumption, influence ex-smokers to resume smoking, influence "would be smokers" (whatever this term means), nonsmoking adults and young people to take up smoking, flies in the face of what marketers and mass communications experts have learned about consumers over the past thirty years.

As Kotler (1988) has put it: "The (advertising) sender's task is to get his or her message through to the receiver." This is not an easy task. Bauer and Greyser (1968) and others have emphasised that the average person in the western world - whether child, teenager or adult - is bombarded with hundreds of advertising messages daily. Consumers erect a series of psychological barriers against these messages; barriers which Schramm (1971) has described as selective attention, selective distortion and selective retention.

1. **Selective attention** (which is sometimes referred to as selective exposure) means that people only take note of a few of the messages beamed at them each day.

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2. **Selective distortion** (which is sometimes called selective perception) means that people who do note the advertisement will interpret it so that it fits in with their current attitudes.

3. **Selective retention** means that people will only retain, in their memories, a few of the already limited number of commercial messages they have previously noted and interpreted.

Logic would cause us to question whether any reader of the "Listener", regardless of age or smoking status, could be influenced by a cigarette advertisement to behave in a way other than he/she would normally behave - because of "selectivity" and other factors which have nothing to do with cigarette advertising.

Factors which are claimed to cause individuals to smoke are discussed in the commentary on Section 6.4 of the TSB report.

Legal to sell, legal to advertise?

"In view of the proven harm from tobacco products ....." (TSBR p30) is repetitious and does not acknowledge expert evidence put before the Board. (See comment on Part 1.)

"... surveyed 1000 adults in September 1988 ... agreed with the proposition "if it is legal to sell a product, it should be legal to advertise it, subject to normal advertising industry restrictions". Even if the product kills 4000 users each year?" (TSBR p30)

The addition of the sentence: "Even if the product kills 4000 users each year?" is assertive, emotional, and unproven. Such an interpolation has no place in rigourous academic analysis. Further, this measure of public opinion would have more logically found its place in Part III, Section 10 which examines public opinion on tobacco advertising, etc.

" "Legal to sell, legal to advertise", while a useful rule of thumb for most products, has, for tobacco, been challenged for several decades by New Zealand legislators" (TSBR p 31).

In any democratic nation it is axiomatic that the freedom of commercial speech, in parallel with the freedom of speech on religion, politics, science and aesthetics, is critical to freedom of choice and the autonomy of the individual. Freedom, in essence, is the right to choose and this includes the right to make choices that others may disapprove of. If the state controls the flow of commercial speech, whether comprehensively or for specific aspects, political and economic democracy are no longer viable. If the state controls what consumers should see and hear, the state controls what consumers do.

These arguments were recently set out in full by Professor Burt Neubourne, Professor of Law at New York University School of Law, in an extended essay on commercial speech, "Free Speech - Free Markets - Free Choice" (Neubourne, B, 1987).

Professor Neubourne's analysis of the issues involved is fully summarised in Appendix D to this review.

6.1.2 The withholding of information by the tobacco industry

"Few independent researchers in any country have had access to the advertising and sales-in-response-to-advertising data ..." (TSBR p31).

Such data is not generally released to ad hoc researchers for a number of reasons:

i) It is invariably commercially highly sensitive data of value to competitors,

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ii) Without expert interpretation by those who understand tobacco markets fully it is frequently misrepresented.

In fact, manufacturers have on a number of occasions released large amounts of data to independent researchers, eg. Metra Consulting (UK) Ltd in 1978.

The other side of the coin should be here recorded that the TSB themselves refused to accept information from independent bodies in the formulation of their report. Despite their inclusion in the list of those who made submissions to TSB (TSBR Appendix 6) the Association of New Zealand Advertisers Inc (ANZA) and the Association of Accredited Advertising Agencies of New Zealand Inc (4A's) both had their offers of formal submissions refused.

6.1.3 *Advertising - slowing the decline*

The TSB argues that:

"(1) Advertising raises consumption.

(2) As known from econometric studies, other factors being equal, advertising raises consumption above what it would have been without the advertising.

(3) This means that when consumption is in a decline ... advertising will slow the expected decline ..."

(4) Conversely, tobacco consumption will decline more rapidly if tobacco promotion ceases ..." (TSBR p32).

The evidence and argumentation presented by Hagan and Martin, Appendix C to this review, totally refute the claim (1) above, that advertising raises consumption in any **mature** market such as that for tobacco goods. The same authors show conclusively that the report's literature review was wholly inadequate for the Board to be able to arrive, with any form of acceptable logic, at claim (2) above. Claim (3) therefore becomes untenable as does its corollary (4).

In New Zealand, tobacco consumption has already fallen faster than in any country that has instituted an advertising ban - for whatever reason - since 1975, the date of the Norwegian advertising ban. The MH Gamma Consulting Ltd analysis of the report demonstrates that further marketing restrictions here would have no measurable impact on tobacco consumption.

6.2 *Econometric studies of tobacco advertising*

6.2.1 *Strengths and limitations of econometrics*

The TSB report precedes a review of 14 studies with a general discussion (TSBR p34-36). **Strict application of the TSB criteria would pretty well eliminate all 14 studies.** Nevertheless, the TSB report concludes not only that advertising tends to increase tobacco consumption, but also that it increases market size and not just market share.

6.2.2. *Econometric studies reviewed*

The authors of the TSB report located 14 relevant studies, but no independent literature reviews are quoted (TSBR p33). They concluded that 11 of the 14 showed that advertising "significantly affected national cigarette sales" (TSBR p36).

As is made abundantly clear in Appendix C, the TSB selection of available studies, is, unfortunately, most inadequate. It is inadequate in that:

- It has failed to examine the several major literature reviews now available.

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- It has failed to examine evidence from studies of similar industries (eg. alcohol).
- The conclusions reached are highly dependent on the results of five studies all of which have been the subject of serious criticism in the literature.

It is very disappointing to find such a **partial** and **incomplete selection** of material has been made by the TSB. It is particularly disappointing that the TSB selection fails to reflect the conclusions reached by Government agencies in other countries where rigourous analysis of the subject has been recently undertaken.

For example:

- US Federal Trade Commission Bureau of Consumer Protection:
  - "Most of the large number of studies of cigarette company advertising have found little or no effect of changes in total advertising on total consumption".
  - "..... according to Hamilton's 1972 review of the literature from the period before the widespread dissemination of health risk information in 1953, early studies found little or no effect of advertising on total demand. **Virtually all recent studies reach the same conclusions**" (emphasis added).
- In the latest US Surgeon General's report it is conceded that:

  "There is no scientifically rigourous study available to the public that provides a definitive answer to the question of whether advertising and promotion increase the level of tobacco consumption"

  and that

  "the ... extent of influence of advertising and promotion on the level of consumption is unknown and possibly unknowable" (US Surgeon General, 1989, p513).

Further evidence omitted by TSB is given in Appendix C. It is clear, however, from these illustrations that the TSB conclusions from their modest literature review are diametrically opposed to conclusions reached recently by other independent, and more thorough appraisals.

Table 6.2.2a

Table 6.2.2a has a number of errors. In the Metra Study for instance:

i) Metra's work covered the twenty year period 1958-1977, not 1957 to 1962 as shown.

ii) Metra found the effect of cigarette advertising on aggregate demand to be **non-significant**.

iii) The number of observations made was 80, not 48 as shown.

iv) In addition to the listed variables surveyed Metra included:
  - Total advertising expenditure
  - Government anti-smoking expenditure
  - Data on cigarette coupons

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- Alternatives to cigarettes, eg. pipes and cigars
- Demographics of potential smoking population
- Other forms of sales promotion
- Special short term factors, eg. 'flu epidemics affecting consumption

"...as the Metra data cannot be checked, they are suspect" (TSBR p35).

Prior to publication the Metra results were submitted to UK Government statisticians for appraisal. The methodology and modelling techniques were verified, models re-run with different variables and the data run on HM Treasury's own model. No substantive variations to the original conclusions resulted from these processes.

6.3 *The relationship between advertising, smoking and ill-health*

Conclusion 1 (TSBR p41)

If advertising is directly related to the number of cigarettes smoked, the same logic must apply to all goods and services advertised. By extension of the logic, the fortunes of any ailing company could be turned round simply by advertising its products - clearly an absurd notion.

Conclusion 2 and 4 (TSBR p42)

See Part 1 of this review for a refutation of the underlying reasoning behind these conclusions.

Conclusion 3 (TSBR p42)

See Appendix C for refutation of this conclusion.

6.4 *The effects of tobacco advertising on young people*

The Board identifies the main issue for discussion here as the factor or factors operating between ages of 10 and 15 that lead 15-year-olds to become daily smokers. The argumentation below will demonstrate that **advertising is not one of those factors.**

i) A large number of research studies, conducted by health organisations, governments and researchers not connected with the tobacco industry have investigated smoking behaviour among children and teenagers in several countries, including New Zealand.

ii) It is not possible to uncover any firm data from these studies which suggests that cigarette advertising induces young people to take up smoking, or to resume smoking after a period of time has elapsed.

iii) On the contrary, study after study has indicated that not only are children and teenagers fully aware of the tobacco and health controversy, but also that they are capable of recognising cigarette advertisements for what they are.

iv) The studies have further indicated that peer pressure, family influences, curiosity and a number of lesser influences (which do not include advertising) are the key factors persuading young people to take up smoking.

v) This should not be surprising since, with teenagers as with adults, the persuasive power of advertising is limited. **In a mature market** in which the product category itself has been labelled as a health hazard, **advertising appears to be incapable of altering basic behaviour.** On the basis of the

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evidence presented to date, smoking initiation and smoking resumption would seem to be beyond the reach of advertising.

vi) The speculative musings of researchers whose research has not uncovered a single suggestion that advertising causes young people to take up smoking, and/or who acknowledge that they have not directly investigated the effectiveness of advertising in persuading children and teenagers to take up or resume smoking are no substitute for hard facts. Moschis (1989), following a comprehensive search of the research literature, concludes:

> "The data are far from being clear whether cigarette advertising creates **in any way** (emphasis added) the desire to initiate smoking and maintain smoking habits among youth."

6.4.1 *Exposure of children to tobacco advertising*

This section of the TSB report expresses concern that New Zealand children are repeatedly exposed to cigarette advertising (TSBR p43). It implies that children and teenagers are more susceptible to advertising - and to cigarette advertising in particular - than are adults.

In order to evaluate this claim we must examine that body of research data which focuses on the reactions of children and teenagers to cigarette advertising, and on their own comments on their smoking behaviour.

During the past few years a number of research studies have been conducted in an attempt to identify the factors which cause young people to take up smoking. These include an important international study sponsored by the World Health Organisation, studies sponsored by various governments, and studies conducted by researchers with no ties to the tobacco industry.

The findings of the studies discussed below demonstrate that the actual effect of advertising on children is widely different to those findings used by the Board in arriving at their conclusions.

6.4.2 *Advertising's effects on children's knowledge and attitudes*

A study conducted in New Zealand in November 1987 by the Heylen Research Centre showed that 98 percent of a sample aged 15 years and over claimed they were aware of the government warnings on cigarette packs. This level of awareness applied equally regardless of age group or smoking/nonsmoking status.

This situation in itself, in addition to the already existing barriers of selective attention, selective distortion and selective retention (see comments on Section 6.1.1 of TSB report) clearly constitutes an extremely formidable obstacle to any attempts by tobacco companies to persuade young New Zealanders to take up smoking; furthermore the industry is prevented by the Code of Practice for the Marketing of Tobacco Products from directing its activities towards youth.

6.4.3 *Children's perceptions and viewpoints on tobacco advertising*

"But" some may argue (in spite of children's widespread awareness of the tobacco/health controversy), "isn't advertising very persuasive? What about the effects of advertising - and tobacco advertising in particular - on children? Aren't children more gullible than adults?"

Once again, it is instructive to examine the findings of researchers who have no known ties with the tobacco industry. A number of studies, from several countries, including those by Donohue, Henke and Donohue (1980) and Rossiter (1984), have indicated that children - including pre-school children- do not appear to be "taken in" by advertising.

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Butler et al. (1981) found that even pre-school children can distinguish clearly between television **commercials** and television **programmes**. In view of the tobacco advertising controversy, this is an important distinction. In summary, it appears that children, like adults, will only be persuaded to desire - and buy - a product if they feel there are some advantages to it.

Gorn and Florsheim (1985) did find some evidence that 9- to 10-year-old girls could, to a moderate degree, be persuaded by advertising to buy lipstick. However, in a related pilot study, the researchers found that 80 percent of the 9- to 10-year-olds interviewed **expected to wear lipstick**, when they were in high school. This is significant, because lipstick has no known health hazards, whereas we have already quoted evidence from a number of sources to indicate that even young children believe that smoking is hazardous to their health.

The TSB report refers to a Scottish study (Aitken et al, 1985) in which students aged 6-16 were asked to comment on a number of advertisements, including six cigarette brand advertisements (TSBR p44). It reports that certain advertisements "appealed to most 14 and 16-year olds, and some 12-year olds." It further reports that the researchers

"... concluded that any advertising campaigns targeted at young adults would therefore be likely to present qualities which young teenagers would find attractive."

This is pure speculation, and furthermore would require a belief that a child or teenager who does happen to like, say, the scenery in a cigarette advertisement would thereby be motivated to begin smoking. Moreover, the TSB report glosses over more significant findings of this same Scottish study. For example, the Scottish researchers report the following comments by children regarding a cigarette advertisement:

> "It's trying to get you to buy cigarettes" (a 10-year-old girl).
>
> "Good background, scenery (but) I don't like the advertising of cigarettes" (a 10-year-old boy).
>
> "I like the horses and the scenery, but I don't like the advertising of cigarettes" (a 10-year-old girl).

This data suggests that even primary school children are capable of recognising advertisements for what they are. They further suggest that children of this age group are particularly suspicious of **cigarette** advertising.

The TSB report cites the Australian "Newcastle study" (Alexander et al, 1983) as confirming that approval of cigarette advertising is an important predisposing factor to subsequent smoking behaviour. **However, a far more plausible explanation (supported by a number of independent research studies), is that a young person's predisposition to smoke induces a greater level of interest in, and approval of a cigarette advertisement, other things being equal.**

Several authorities, (eg. Starch, 1962 and Bauer and Greyser, 1968) have cited research which **indicates that liking for a particular product category or a particular brand within that product category is associated with liking for advertisements featuring them. In other words it may be a desire to smoke (caused by other factors) which causes a person to like a cigarette advertisement, not the reverse.**

6.4.4 *Children's report of factors influencing their first cigarette*

If cigarette advertising is, in fact, either a major or minor cause of smoking by children and teenagers - in New Zealand or any other country - one would expect it to be **identified as such** in the many studies sponsored, in recent years, by widely-

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respected international organisations, by governments and by other researchers not linked to the tobacco industry.

Quite to the contrary, however, these studies consistently report the **same findings**, namely that peer pressure, family example and curiosity are the major factors causing young people to begin smoking. Several of these studies will next be discussed.

A World Health Organisation (WHO) survey to determine the lifestyle and health behaviour of young people was conducted in Austria, England, Finland and Norway from 1983 to 1984 (Aaro et al. 1986). The survey found that smoking habits were closely related to the number of smokers in the family. When no-one in the family was a smoker, only 13 per cent of the boys and 10 per cent of the girls smoked. When there were three or four smokers in the immediate family, 46 percent of the boys and 47 per cent of the girls were regular smokers. In all four countries both smokers and nonsmokers reported a relatively strong belief in the harmful effects of smoking.

The WHO four-country study also revealed that the probability of a 15-year-old student being a regular smoker increased when the student reported poor school achievement, disliked school and had no plans for further academic education.

The WHO study comments on "the lack of clear differences in smoking habits" between the four countries in its study, and goes on to say, "since Norway and Finland are countries with a restrictive legislation on advertising of tobacco products, and the other two countries (Austria and England) are not, a difference might have been expected. No such systematic differences are found.

Research conducted in Canada also provides valuable insights into smoking behaviour among young people. Studies sponsored by the Canadian federal government and three Canadian provincial governments have reported similar findings to those of the above-mentioned WHO survey. A study conducted for the Canadian Federal Department of Health & Welfare by Goldfarb Consultants (1981) reported that **peer pressure, parental example, curiosity and perceived socially acceptable behaviour were the primary reasons advanced for smoking initiation by both Canadian parents and young people.**

A Gallup Poll study conducted for the Canadian Department of National Health and Welfare (DNHW), (1986) provided further evidence that peer pressure, curiosity, parental smoking, sibling smoking and sheer devilment are key factors in persuading young Canadians to begin smoking. Yet another Canadian study, sponsored by DNHW and the governments of Saskatchewan and New Brunswick (1987), uncovered similar data.

What is striking about the data uncovered by these studies (all without exception, sponsored by non-tobacco industry bodies or by independent researchers) is **the absence of any suggestion that advertising causes young people to take up smoking** - even when children and teenagers have been given an opportunity to list it as a factor. (Studies sponsored by the tobacco industry, incidentally, have produced similar findings to those uncovered by these health organisations, governments and independent researchers).

The findings of the studies discussed above have not served to discourage researchers (and sometimes, ironically, the same researchers who conducted them) from asserting that cigarette advertising causes young people to take up smoking, despite the absence of data to support these speculations.

The TSB report, in referring to the Dunedin study, states that "... [it] cannot give a **definite answer** (emphasis added) on the role of advertising during the critical years 12 to 15". It further states that the "... study was not oriented towards the question of advertising and smoking uptake by children" (TSBR p45). One wonders why the Dunedin research project did not include specific questions designed to establish whether or not advertising persuaded children and teenagers to take up,

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or resume, smoking. One explanation is that advertising was not considered by the Dunedin researchers to be an influencing factor.

The Children's Research Unit multinational surveys

"As was pointed out ... by Dr Phil Silva ... cross-sectional studies like those of CRU are inherently incapable of answering the question of interest: "Does advertising influence a proportion of children who buy their first cigarette at say, age nine, to become daily smokers ... some years later" (TSBR p45)?

The report provides no reasons or justification for Dr Silva's opinion that the CRU approach is "inherently incapable" of answering this question. Furthermore it completely ignores the most obvious fact that a child cannot become a regular smoker until he/she has tried a first cigarette. Thus initiation, and the reason for it, must therefore be a critical area of study.

No one study can simultaneously investigate all issues pertinent to juveniles and smoking. What CRU undertook was to investigate comprehensively the primary issue - that of smoking initiation - across countries with varying levels of tobacco advertising.

"Dr Silva's study was not oriented towards the question of advertising and smoking uptake by children, and, therefore ... cannot give a definitive answer on the role of advertising during the critical years 12-15" (TSBR p45).

It again has to be asked why Dr Silva's work was not directed to such an objective.

"The World Health Organisation has criticised the IAA report [of CRU's multinational research] for its dubious inter-country comparisons" (TSBR p45).

See earlier comment in this section on this WHO report.

"The small numbers interviewed at any given age in the CRU study implied considerable sample errors. The age group 7-15 years is an unusual one ..." (TSBR p45).

To criticise studies based on sample sizes of 1000 respondents is to display ignorance of statistical sampling techniques. The TSB authors clearly do not appreciate that sheer numbers do not necessarily contribute to statistical reliability of the results.

The 7-15 year age groups were selected to cover the full age range over which smoking initiation is likely to occur in children. To have selected any other range merely for the convenience of comparisons with other surveys would have negated the principal objective of this research.

"The CRU survey also assumed that children can assess subtle forces such as advertising ..." (TSBR p46).

This comment is characteristic of arguments posed by those who are unaware of the complexities of the issue which leads them frequently to claim that the effects of advertising are too subtle to be measured. CRU, however, has specialised in this very subject for 15 years and has demonstrated that children **are** quite capable of identifying advertising influences where these are relevant, and they are less reluctant than adults in this respect.

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CRU's studies show very clearly that advertising is irrelevant to the smoking decision making process; personal, social and cultural factors are of very considerable importance. Furthermore, CRU's findings are consistent internationally.

"The Board agrees that curiosity is an important factor in young children trying their first cigarette ..." (TSBR p46).

If the Board takes "curiosity" alone as the principal important factor they have misread the CRU's conclusions. These are that smoking initiation was found to depend very much on the influence of family and friends, **combined with** personal curiosity. Broader cultural factors are also reported to be relevant especially in certain countries.

6.5 *The effect of sponsorship advertising*

6.5.1 *Exposure to tobacco advertising through televised cricket*

It is wholly spurious to attempt, as the Report does here (TSBR p48), to equate exposures of tobacco brand names, which are peripheral to the main activity on the screen, to an equivalent number of commercial advertising breaks.

6.5.2 *Sponsorship advertising acts as advertising to young people (TSBR p48)*

Elsewhere in this review is detailed evidence that "brand awareness" of a product, be it tobacco or any other product, does not of itself lead to the desire or intention to purchase or consume the advertised product (see commentary on section 6.4.3). Further, that advertising is **not** a factor in influencing young people to take up smoking.

6.5.3 *Effect of sponsorship on adult tobacco use*

"... no published econometric studies on this point could be found" (TSBR p49).

Section 6.2 of the Board's report emphasises the need for reliable econometric research on which to base conclusions. Yet here we have the Board making assumptions and statements where no such studies are available.

"These polls ask ... whether their own consumption of motor oil, tobacco or liquor is influenced by the sponsorship activities of the companies ... Four percent in 1978, 4 percent in 1982 and 3 percent in 1988, said yes" (TSBR p49)

The Board have misinterpreted the meaning behind the phase "... their own consumption ... is influenced ..." It has elsewhere been adequately demonstrated that advertising, or even sponsorship, will have no effect on the aggregate demand (ie. recruit new product users) for products in these "mature" markets, therefore those small numbers claiming to have had their consumption patterns influenced are only telling us that they have switched from Brand A to Brand B, the sponsored brand. It is naive to imply, as the TSB report does, that someone suddenly realised that he needed to put oil in the engine of his car after visiting or viewing an oil company sponsored event.

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6.6 *The economics of tobacco advertising, brandswitching and the teenage tobacco market*

"Advertising is said to promote brandswitching, instead of increasing market size, but analysis of this argument lead to the conclusion that brandswitching justifies economically only 7 percent of advertising expenditures" (TSBR p50).

Such a conclusion demonstrates not only the naivete of the Board but also the shallowness of their research as evidenced by the paucity of their literature review and their refusal to accept expert opinion from such as the Association of New Zealand Advertisers Inc (ANZA) and the Association of Accredited Advertising Agencies of New Zealand Inc (4A's).

A full dissertation of the economic effects of different types of advertising for different types of markets and messages is provided by MH Gamma Consulting Ltd at Appendix C, p37-43. The main arguments are summarised here:

"The Role of Advertising in General

"Advertising can be defined as the paid for communication of information. As such it is used for a variety of purposes ranging from publicising the availability of branded goods, generic campaigns ("drink more milk"), through to job recruitment, charity fund raising and a wide variety of other non-commercial purposes. **Most advertising is bought in connection with selling branded goods and services** (emphasis added).

"Advertising does not have an automatic effect. Many advertisements do not produce the desired consumer response. **Nor does the effectiveness of advertising necessarily increase in proportion to the amount spent** (emphasis added).

"These conclusions are massively documented in the advertising literature.

"The message may be one the audience does not want to hear in which case it will be ignored (emphasis added). An advertisement for sports equipment is unlikely to work if placed in a magazine whose readership largely comprises old people. Even when an advertisement features a useful and appealing product and is correctly placed it may still fail to sell the goods as intended because, for example, it appears alongside an advertisement for a product known by users to offer superior value in terms of price or quality. Marketing text books illustrate the difficulty facing advertisers by pointing out that a great many new brands - most of which are heavily advertised - fail to become successful products.

"Display advertising (i.e. all advertising other than classified) can be broadly divided into:

"1. Brand preference advertising.

"2. Advertising having a purpose other than brand preference.

"Brand Preference Advertising

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"**Brand preference advertising seeks only small changes in consumer behaviour** (emphasis added). The choice between one brand of toothpaste and another is of little consequence for the individual consumer although in aggregate it is obviously of great importance to the manufacturers involved in the market.

"**In established markets when one brand succeeds it usually does so at the expense of another brand** (emphasis added). It is often the case that a successful new brand which breaks through into a market has some new competitive advantage over older brands.

"But crucially it is unlikely that all campaigns collectively can be successful. **Brand advertising is primarily competitive in nature** (emphasis added). In a new or rapidly expanding market it is conceivable, although unlikely, that all brands can be successful but **the competitive nature of brand advertising means that in a stable or declining market, for every winner there must be a loser** (emphasis added).

"In a market having for example three soap or gasoline companies with equal technological and managerial skills, a company which ceases to advertise is likely to find its market slipping away to its competitors. It is this which explains the prevalence of advertising in markets such as gasoline where it is obvious that overall consumption is not affected by brand advertising.

"To summarise, the business of advertising and selling goods, even when the purchase decision is one of a most trivial kind, is neither simple nor easy. No matter how much is spent on brand preference advertising there is no guarantee of success and a considerable risk of failure.

"**Advertising for Purposes Other Than Brand Preference**

"**There is a major difference between advertising devoted to getting customers to retain their present brand or to switch brands - which individually play an insignificant role in the consumer's life, and attempting to use advertising messages to alter fundamental behaviour patterns** (emphasis added). Advertising campaigns designed to persuade the public to consume more ("drink more milk") or less ("stop drinking or smoking") of a particular product or to otherwise change their behaviour ("save energy, wear seat belts") fall into this latter category.

"It is evident that if the power of advertising is limited in relation to relatively trivial tasks such as getting the consumer to switch brands of toothpaste, there are grounds for believing that using advertising to obtain more fundamental changes in human behaviour patterns may be a much more difficult task.

"There is, in fact, a large body of evidence which suggests that the more radical the change in human behaviour sought via advertising, the more difficult the task becomes.

"Attempting to modify consumer habits such as milk drinking is closer in content to getting people to smoke less or consume less energy than it is to a normal brand preference campaign. **The evidence**

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suggests that markets do not necessarily react to generic advertising - which is specifically aimed (unlike brand preference advertising) at increasing total market sales (emphasis added).

"Advertising is far from being the moulder of human tastes and desires it is sometimes thought to be. Particularly where the popularity of a product is in decline, it is at best doubtful that generic advertising is capable of reversing the trend.

"To summarise, the role of advertising is a complex one. There are good reasons for believing that advertising does not provide an easy or automatic means of expanding sales at either the individual brand level or at the level of a whole industry. Sales of brands and industries are determined by many factors of which advertising is but one. There are reasons for believing that the task of radically changing human behaviour patterns is a more difficult task for advertising than is the far simpler, but still difficult, job of achieving brand switching behaviour.

"Brand Preference Advertising and Total Demand

"It follows from the foregoing that advertising is most effective when its purpose is brand preference ...

"What then is the likelihood that brand preference advertising will have the effect of increasing the overall market for a particular product?

"The answer will depend on the nature of the market for the product.

"If the product is new, as for example VCR's a few years ago, the effect of brand preference advertising may well be to expand the total market because the advertising, while directed to a particular brand, also has the effect of making consumers aware of the product's existence or advantages.

"There are product markets on the other hand **("mature" markets)** (emphasis added) in which the product itself and its advantages or disadvantages are virtually universally known. The cigarette market is one example. In such markets brand preference advertising does not make the existence or advantages of the product known because they are already known.

"There is a fundamental reason for supposing that the collective impact of individual brand campaigns is likely to be minimal. It is quite simply that in order to stand any **chance** of working, the objectives and methods of campaigns aimed at stimulating entire markets are necessarily different from the objectives of ordinary brand campaigns.

"Normal brand advertising neither attempts to stimulate sales of the product type as a whole, nor aims itself at people who are not in the market for the product. For example petrol advertising is aimed only at drivers, cosmetic advertising at women, and cigarette advertising at existing smokers (emphasis added).

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"The role of advertising within the marketing mix for an established branded consumer product is to stimulate repeat buying of brand "X", and to help build up market share by increasing the number of regular, loyal buyers of brand "X" at the expense of brands "Y" and "Z".

"Generic advertising is quite different from brand advertising in intention, even though it uses the same media and similar techniques. Generic advertising is intended to increase total demand for a product as a whole.

"Effects of generic advertising can vary depending on the nature of the market and its objectives. It can stimulate demand either by:

"a. Persuading non-buyers or users to try the product.

"b. Persuading existing buyers of all brands (as opposed to purchasers of the individual brand) to buy or use the product more frequently or in large quantities.

"c. Increasing buyers' perception of the value of the product.

"It cannot do all three at once.

"There are therefore very large and important differences between ordinary advertising campaigns aimed at selling individual products, and generic campaigns aimed at whole categories of product. **There are therefore prima facie reasons for supposing that the collective impact of brand advertising is most unlikely to do the job of a generic campaign since the objectives are quite different** (emphasis added).

"In addition to these theoretical reasons for believing that brand advertising is unlikely to influence the size of the entire markets, there are other reasons for believing such influences to be unlikely which can be supported by empirical evidence.

"A campaign for a new soap stands a reasonable chance of getting a proportion of shoppers ... to try the new offering. If other factors such as price and quality offer real advantages over other products the advertising campaign may even succeed in getting a few percent of shoppers to become loyal purchasers of the brand.

"To suppose, however, that the collective impact of such campaigns will influence shoppers to wash more is somewhat absurd. It would suggest that heavily advertised product categories would automatically grow at the expense of less heavily advertised categories, that such effects would be easily visible when analysed, and that advertising expenditure in total is a fundamental force impacting heavily on economic growth as a whole.

"Finally there is no good evidence showing that advertising expenditure is a determinant of overall economic growth.

"To the contrary **many available studies indicate that even very large increases in brand preference advertising have no impact on aggregate or total demand for the products in question** (emphasis added).

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"A recent illustration of very large variations in brand advertising obviously not affecting total demand comes from the UK alcohol market. Between 1978 and 1987 brand advertising for beer rose in real terms by over 80 percent. In that period beer consumption fell by 14 percent. This represents a rise in advertising spending (adspend) per litre of over 100 percent - resulting in a major sales fall. Similarly, in the UK spirit market between 1978 and 1987, adspend rose by over 70 percent yet sales fell 4 percent. By contrast in the wine market, adspend per litre fell by 26 percent, yet sales soared by 65 percent.

"The message is clear. Brand expenditure in aggregate is most unlikely to have an automatic impact on consumption trends. This is not to say however that all individual campaigns within those aggregate figures must have been failures.

"In this context the cigarette market in the UK also provides a very good example of the lack of influence brand advertising has in aggregate over total sales. Advertising expenditure has risen by 7.5 percent in real terms since 1975. In this period sales of tobacco products have fallen by approximately 27 percent (emphasis added).

"Here again brand preference advertising is shown to be ineffective in stimulating aggregate demand. It is not surprising that this should be so given that brand preference advertising is not designed to do this job.

6.7 *Indirect effects of tobacco advertising on coverage of smoking issues*

"In the United States, the coverage of smoking and health in the media, ... has been found to correlate with the percentage of advertising revenue from tobacco ..." (TSBR p50).

This comment is, to a large extent, based on no more than anecdotal evidence and its relevance to the situation in New Zealand is revealed by the remark that:

"News columns in many newspapers in recent years have given excellent coverage to smoking and health issue; others, much less" (TSBR p51).

The amount of coverage given to any particular issue is simply a reflection of the editor's judgement of what is of interest to his/her readership.

One must ask why only three not very representative publications, were chosen to illustrate Figure 6.7 (TSBR p51). The data given here does not reveal how many of the very large numbers of "health articles", which term is not defined, also contain anti-smoking messages.

The data also discloses that the frequency of cigarette advertisements in each of the three publications is as low as: -

NZ Truth	1.2 ads per issue
NZ Woman's Weekly	0.7 ads per issue
The NZ Listener	1.5 ads per issue

This is hardly a sufficient frequency to justify the point made by TSB.

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Source: https://www.industrydocuments.ucsf.edu/docs/rmbl0000

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7 *Report of a study on the relationship between government tobacco promotion policies and tobacco consumption trends in 33 countries, 1970-86*

Introduction

This is a key buttress for the TSB case that advertising bans are accompanied by falls in tobacco consumption.

*"For policy purposes, in the opinion of the Board, **there is sufficient evidence from the thirty-three countries as a whole** (emphasis added), ... on which firmly to recommend the abolition of tobacco promotion..." (TSBR p76).*

As we show the thirty-three country study contains a great many errors and misconceptions, and much invalid data and analysis. The study's conclusion cannot be regarded as a reasonable basis for policy decision making.

7.1 *Scope and summary of the study*

The avowed aim of the study was to answer three questions:

*"1) Are advertising bans **accompanied** by falls in consumption (emphasis added)?*

*2) Do advertising bans impede the free flow of information about less **dangerous cigarettes** (emphasis added)?*

*3) Are tobacco advertising bans **worthwhile** (emphasis added) (TSBR p56)?"*

These questions are laced with value judgements not in keeping with a statistical assessment. They are poorly defined, in terms of outcome measures and power to detect meaningful effects, and seem to be worded in a manner which is not objective.

1. "Accompanied" presumably means following or contemporaneous with some form of intervention? What constitutes a "fall" in consumption: more than two standard deviations of the historical consumption figure for that country?
2. The impedance of "free flow of information about less dangerous cigarettes" is presumably a reference to the assertion that tobacco product advertising is the avenue by which the consumer discovers the existence of such products as low-tar cigarettes, high-efficiency filters, etc. The question might as easily have been framed as to whether advertising bans might impede the free flow of information about cigarettes and tobacco products. Such a neutral statement is more in keeping with the type of document one expects this to be.
3. "Are ..... bans worthwhile?" Worthwhile is a judgemental word.

General Issues of Methodology

The TSB report claims:

"The thirty-three countries studied provide over 400 years of observations of differing levels of tobacco prices, personal incomes and advertising restrictions, including total tobacco advertising bans (TSBR p56)."

We would make the following brief points:

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- The data base for this study is neither homogeneous nor of good quality.
- The data does not cover the period 1970-1986 since data for Eastern Bloc countries is not available prior to 1980.
- Far from 400 years, much of the data rests on 219 years.
- **There is only one year's data available for Iceland**, an important point, to which we shall return.
- **The data for Portugal is restricted to the period 1983-1986 which is also of critical importance.**
- The official data (from the sources listed in the TSB Appendix 5) are not sourced specifically and individually.
- The creation of an "advertising ban" variable is claimed to add validity, but is defined arbitrarily.

The quality of the data is also of some concern: let us deal with this latter point in more detail.

Sage Consultants have this to say:

"The Appendices to the TSB report include Table A3.2 (TSBR p 133), which purports to contain data on tobacco consumption based on extracts from national statistical yearbooks, the Tobacco Quarterly, the UN and OECD National Accounts, and UN Demographic Yearbooks. These data are, of course, very difficult to obtain, and, depending on one's sources, can vary a great deal. For example, official statistics from Norway, including border trade, obtained from J L Tiedemanns Tobakefabrik through the Centre International d'Information du Tabac (INFOTAB), for years 1970, 1975, 1980, 1985, 1986, 1987 were as follows:

1970	1975	1980	1985	1986	1987
1999	2066	2085	2027	2059	2006

"The corresponding figures from the version of Table A3.2 originally supplied to the Tobacco Institute of New Zealand are shown below with those quoted in the TSB report as published given in braces {}:

1970	1975	1980	1985	1986	1987
2032	2099	2109	1909	1919	1863
{2040}	{2107}	{2118}	{1916}	{1927}	{1870}

"It is clear that there are major differences between these figures; it is possible for them to differ by up to 7 percent, in either direction. (Interestingly, this is about the figure that the TSB predicts as the expected drop in consumption resulting from the imposition of a total advertising ban. **When the uncertainties in the raw data are of a magnitude comparable with the predicted effect, one is generally led to believe that the model is not particularly useful or powerful.**) (emphasis added)

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"For Japan, where the TSB report states that the figures available are for manufactured cigarettes only, the corresponding figures are (again statistics through INFOTAB from the Tobacco Institute of Japan):

1970	1975	1980	1985	1986	1987
INFOTAB statistics:					
n/a	n/a	3457	3296	3227	3184
TSB report:					
(2826)	(3433)	(3409)	(3327)	(3329)	n/a

"Again, the differences are of magnitudes which are comparable with, or greater than the increases/decreases in consumption that the report analyses. If the data were subject to consistent biases, this would not be such a great worry; however, this is certainly not the case, and the indifferent quality of the figures is sufficient to cause considerable doubt on the whole of the study. In view of the many sources for these data, and the possibility of obtaining equally plausible data from other sources, it would seem that **the obtaining of the raw data for the study is a major exercise in itself, and needs some justification and documentation before the figures can be realistically analysed**" (emphasis added) (Appendix B, Sage, Section 7, p4).

Further, the TSB report is an extensive document. Although substantial, and visually very well presented, **the study contains a great many errors and misconceptions, and much invalid data and analysis. There are six main areas of criticism.**

"**First**, the authors of the report have made some fundamental assumptions about how advertising works. These assumptions are almost all demonstrably wrong" (Appendix C, MH Gamma, p2).

The TSB report betrays a total lack of understanding of how consumer markets operate, and the role of advertising within these markets.

The effective inadmissibility of submissions from both the Association of New Zealand Advertisers Inc (ANZA) and the Association of Accredited Advertising Agencies of New Zealand Inc (4A's) has thus been shown to be an error of judgement on the part of the TSB. Such submissions might have prevented the TSB from drawing some of the conclusions in Part II, Section 6 (TSBR p28-50).

"**Second**, the report uses a great deal of market survey data to justify the conclusions reached". (See Tables 7.5.1a and 7.5.1b, TSBR p68-69). "Market survey data covering tobacco **consumption**" (emphasis added) "is always prone to very considerable error. This is a matter of fact not opinion. The large error to which the data is subject invalidates all conclusions drawn from this source.

"**Third, the report uses tobacco consumption data in a selective and partial manner**" (emphasis added) (Appendix C, MH Gamma, p2).

The TSB's manner of usage of tobacco consumption data thus undermines the conclusions they have drawn.

Fourth, even accepting the TSB's methodology and consumption data, the conclusions the TSB has drawn are still not valid. The reason is that the TSB's conclusions are entirely dependent on four years' data from Portugal. Further analysis has revealed that the data used for Portugal are volatile and, in addition, if the later data presented in the TSB report are incorporated into their analysis, the reason for the TSB's superficial conclusion largely disappears.

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Fifth, the report bases many of its judgements on a small scale literature review which leaves out of consideration many of the most important papers in this area of knowledge. Many individual papers, and more crucially, most independent reviews of the evidence (covering in total many more analyses than the 14 studies examined by the TSB), have arrived at conclusions diametrically opposed to those drawn by the TSB authors.

In addition to the lack of coverage of the TSB review, the conclusions the TSB draw from their review of the literature is heavily dependent on five studies all of which have been the subject of serious criticism, and one study as yet unpublished (and hence not yet the subject of any critical appraisal). **The TSB literature review cannot as a consequence be taken as a serious objective appraisal of the evidence.**

Sixth, the report contains a large number of what can only be called mistakes of various types, ranging from the evident lack of appreciation of simple statistical practices, to the inclusion in the report of contradictory statements. **In several important analyses the use of totally inappropriate statistical techniques leads the TSB to draw conclusions that are the precise reverse of what is demonstrably true.**

To conclude, the TSB report is an ambitious attempt at producing a definitive answer to the question of what impact tobacco advertising has on tobacco consumption. **Unfortunately the report is full of untenable assumptions, unusable and misleading data, faulty statistical method, errors and contradictions. Individually these various criticisms invalidate large sections of the TSB report. Collectively they mean that the study's conclusions cannot be regarded as a reasonable basis for public policy decision making.**

A re-analysis of the TSB data does actually provide firm evidence that:

> "1. Advertising bans and restrictions have little or no impact on the consumption of tobacco products.
>
> "2. Advertising bans do impede the growth of the market share of filter cigarettes (and hence probably also the growth of low tar cigarette types).
>
> "These conclusions are broadly in line with the results of literature reviews undertaken by independent Government agencies and academics who have reviewed the evidence relating to the impact of advertising in general terms and of tobacco advertising in particular." (Appendix C, MH Gamma, p3).

As regards the situation in New Zealand, tobacco consumption has already fallen faster than in any country that has instituted a tobacco advertising ban - for whatever reason - since 1975, the date of the Norwegian tobacco advertising ban. This analysis of the TSB report demonstrates that further restrictions on tobacco advertising in New Zealand would have no measurable impact on tobacco consumption.

7.2 *Various types of advertising bans*

The following four sections are general descriptive material that does not require stringent evaluation.

Total tobacco advertising bans
Tobacco promotion permitted in few media
Permitted in most media
Permitted in all media

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7.3 *Previous studies of the impact of advertising bans*

The TSB report is far from objective. While it skillfully represents the format of a critical review of evidence, in fact it applies a critical review only to those bits of information that are in disagreement with the final conclusions of the report.

7.3.1 *Hamilton's study of partial advertising bans*

Hamilton's study (TSBR p58-59) is widely quoted because it was presented to the Third World Conference on Smoking and Health and was done with support of the American Cancer Society. The study was rejected by TSB because it is "based on inadequate data" and suffers from "faulty specification of the problem". The faulty specification appears to be Hamilton's finding that partial bans do not work, from which he and others had drawn implications that stronger bans and total bans would not work either.

7.3.2 *The (British) Advertising Association (BAA) study*

The BAA study (TSBR p59-60) is criticised for making no distinction between bans for political, trade or health reasons. However, the study is important because it compares trends in cigarette and tobacco consumption in Eastern Bloc countries, Italy and Norway in which advertising bans, or lack of advertising, do not appear to interfere with the growth of cigarette sales.

7.3.3 *World Health Organisation (WHO) reviews of tobacco use*

The WHO study (TSBR p60) conflicts with the TSB's conclusions and with the TSB's Department of Health Study. The main reason for the difference in results are ascribed to the role of hand rolled cigarettes. The prevalence of cigarette consumption in such countries as Iceland, Finland and Norway are ascribed to a shift from hand rolled cigarettes to manufactured cigarettes without any reasons given of why such a shift should occur, or how its extent is determined.

7.3.4 *The International Advertising Association (IAA) 16-country study*

The importance of the IAA study (TSBR p60-61) is acknowledged but the study is criticised by such enigmatic and unreferenced statements as "researcher will find that the IAA data differ in some cases from official national statistics, for both consumption and population. Nor do the data necessarily correspond with data published in the Commonwealth Secretariat's Tobacco Quarterly" (TSBR p61). Not only is that statement not referenced, but no examples are given of how IAA data differ from official national statistics or fail to correspond with the data in the Tobacco Quarterly.

In this respect it is worth noting as we have shown (see p61) that variances of up to 7 percent over time are recorded in tobacco consumption in some tables of the Health Department study.

7.4 *Methodology of Department of Health's study*

This study was undertaken "in an effort to avoid deficiencies in previous studies" (TSBR p62).

According to the TSB report, this study:

1. *includes 33 countries*
2. *spans a 16 year period*
3. *relies on official data*
4. *defines "advertising ban" on a ten point scale*
5. *uses a reliable consumption measure*

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6. *includes adult smoking trends*
7. *includes smoking trends among young people*
8. *allows for income effects*
9. *allows for tobacco price effects*
10. *compares the affordability of tobacco products between countries.*

It is interesting to observe the extent to which these claims were met.

1. Some of the key conclusions are based on only one country, **not** 33 countries.
2. Some of the key conclusions rest on elapsed time periods of one year (Iceland) or three years (Portugal) and **not** 16 years.
3. The official data can vary as much as 7 percent over time.
4. The advertising ban definition is arbitrary and/or judgemental.
5. The consumption measures are variable and inconsistent.

6&7. The survey data (for young people or otherwise) do not provide reliable consumption data.

8. The allowance for income effects is actually the use of retail sales per capita in most cases.
9. The allowance for tobacco price effects applies only to 24 countries, and has difficulty coping with low real absolute prices.
10. The affordability of tobacco products between countries was based on a priori grounds without any specific justification.

7.5 *Results*

"The overall finding of this study was that:

When countries were grouped according to the degree of governmental restriction of tobacco promotion, the greater the degree of restriction, the greater the average annual fall in tobacco consumption. This was also true for the rate of decrease in the percentage of adults and young people who smoke" (TSBR p64).

> "However it turns out on careful review, that **the New Zealand Department of Health Study used the incorrect statistical index to compute annual average rate of change in tobacco consumption in relation to tobacco advertising groups.** For the data acquired by the New Zealand Department of Health Study, the median but not the arithmetic mean is the appropriate measure of the expected percent decrease. When the correct statistic is used, the apparent relation between extent of an advertising ban and decrease in tobacco use largely disappears. In fact, based on the data of the 20 advanced economy countries, the smallest decrease in percentage of adult smoking occurs in those countries with no advertising. These findings are similar to those of the major studies of cigarette consumption following a partial or complete ban of cigarette advertising (The Hamilton study of partial advertising bans, the British Advertising Association study, The World Health Organisation review of tobacco use, and the International Advertising Association 16 country study)". (Appendix E, Sterling, Summary, p2)

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7.5.1 *Policy on tobacco promotion in relation to tobacco use*

This section of the TSB report is based particularly on Tables 7.5.1a and 7.5.1c. These tables, as printed in the TSB report, are reproduced for the convenience of the reader at the end of this section of the review.

Annual tobacco consumption per adult

Rate of change in the percentage of adults who smoke

The TSB conclusion derived from Table 7.5.1a is that adult smoking has fallen faster in groups of countries with advertising bans (TSBR p65).

MH Gamma Consulting Ltd have this to say:

> "The entire argument derived from table 7.5.1a hangs on data from three countries with a tobacco advertising ban: Iceland, Finland and Norway. The TSB have used an arithmetic average of the annual percentage fall in adult smoking to derive a "group average fall" of 3.7 percent. This figure is somewhat difficult to interpret from a public policy stance since it is derived from a 9.5 percent fall in Iceland, a 0.5 percent fall in Finland and a 1.1 percent fall in Norway.
>
> "The large fall in smoking in Iceland (population just over 200,000) distorts the true position. In Norway and Finland (combined population over nine million) the fall in smoking averages less than 1 percent. The population weighted average is also under 1 percent. This average fall of under 1 percent compares unfavourably with the much larger fall in smoking (on either a population weighted or unweighted basis) shown in the countries that allow tobacco advertising, as quoted in the TSB report. The true conclusion, to be drawn from this table is again the precise reverse of that drawn by the TSB." (Appendix C, MH Gamma, Section 7, p17)

Sage Consultants advise:

> "The column headed "Annual percent change in percentage per country" consists of numbers which have been obtained by looking at the overall percentage change from the beginning of the period to the end, and then dividing by the number of years spanned. The resulting figure is not the annual percentage change!"
>
> "The average percentage change may well be a realistic parameter to consider, but this method of calculation is not a particularly good one: a better approach would be to fit a model to the data from as many countries as possible, positing a different rate of change for each country, but using all of the data to obtain as good an estimate of the natural variation as possible. **One of the greatest weaknesses of this report is its consistent refusal to approach any of these tables of data in a statistical fashion.**" (emphasis added) (Appendix B, Sage, Section 7, p6)

Sterling and Associates Ltd inform

> "The computation of the average is by means of the arithmetic mean for which the percentages were first summed and then divided by the number of countries. (ie. for Table 7.5.1c, for the group "total-ban on tobacco promotion for health reasons," percent changes were -0.2,

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-0.4, -0.8, -5.1. To compute the arithmetic mean these four values were summed, yielding a sum of -6.5 and then divided by 4, yielding an arithmetic mean of -1.6 percent change).

"Conclusions concerning decline of tobacco consumption in relation to banning of advertising that pertain to the countries and to adult smoking are based on the arithmetic means computed in Tables 7.5.1a and 7.5.1c.

"However the arithmetic mean is the incorrect statistic for summarizing the percent change in tobacco consumption or change in adults' smoking for advertising-ban-score groups. When the correct statistic is used, **the apparent relation between extent of an advertising ban and decrease in tobacco consumption in adults' smoking disappears and with the disappearance, the conclusions of the Department of Health Study and the TSB Report lose their validity.**" (Appendix E, Sterling, p7)

Department of Scientific and Industrial Research (Applied Mathematics Division) Inform

"Table 7.5.1a considers annual average rates of change of adults smoking in a group of 25 nations classified by the degree of tobacco advertising restriction in force.

"Before considering the summary statistics presented for the annual % change per group, I would like to take issue with the calculation of the annual % change for each country. Taking the case of Australia, where promotion was banned in most media for 11 years, the % of adults who smoke is reported as dropping from 38% to 33.5%. The actual drop of 4.5% is then expressed as a percentage of the original figure, and this percentage is divided by 11 to get a purported annual % change of -1.1%. Thus a drop of 4.5% over 11 years would be reported as giving a larger annual % change if the actual drop was from 18% to 13.5% than if the drop was from 38% to 33.5%. Yet in both cases the actual number of people giving up smoking is the same. It would be preferable to calculate the annual rate of change directly from the percentages at the start and end of the period. For Australia the annual % change is now -0.4%, rather than the figure of -1.1% quoted in the table. In every case the annual rates are now closer to 0.0% than before.

"Turning now to the last column of the table itself I take the grouping of nations as given. The point of most concern is the summarisation of the individual data points of the countries in a particular group by taking the (unweighted) AVERAGE of their values to be representative of the group. This is an extremely non-robust summary, particularly for a group containing few countries. There are several summary statistics that would give a more reasonable value for each group, such as the median, or an average weighted by, say, the population of the country, or weighted by the length of the period over which the data was gathered. This point is most clearly seen, in Table 7.5.1a, by the first group of countries, those with an enforced tobacco ban, with individual data values of -9.5%, -1.1%, and -0.1%.

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This group has a median value of -1.1% as opposed to a mean value of -3.6%. It can be seen that the mean value is heavily influenced by the single value of -9.5% for Iceland, a country of 250,000 people, from a survey period of one year...

"It can be seen from the medians of corrected data in the table that there is no consistent trend across the groups. Given the range of values in each of the groups it seems to me that no more elaborate statistical analysis is warranted." (Appendix F, DSIR, Applied Mathematics Division, p1-2)

Sage Consultants Ltd Inform

"It is worth noting that among the many criteria that epidemiological studies demand for evidence indicating causal relationships are strength, consistency and specificity of association, strength being indicated by a **statistically significant change** being found. If we take the simplistic approach of the TSB report, and just consider the changes in prevalence (but calculating the changes on the appropriate basis of a compounding change), we find the following table of means and standard deviations:

"Sample number	Sample mean	Standard deviation	Sample size
Total Ban	-3.65413	5.06891	3
Strong Ban	-2.70412	0.940552	6
Weak Ban	-1.37066	1.1767	12
No Ban	-1.3323	0	1

"The means in this table are quite different to those reported in Table 7.5.1a in the report; standard deviations, of course, are not reported at all in the report. The comparison of a set of grouped figures is usually done by means of the statistical technique called "analysis of variance", by which the variation observed among the group means is compared with the variation that might be expected if there were no rationale for the grouping, and the variation was the same as within the groups.

"When this analysis is performed on the data from Table 7.5.1a, the table of means and standard deviations above is produced, **and comparison of the groups reveals that there is no difference between any two of the four groups** (emphasis added). If we subject the TSB figures to the more appropriate analysis of the changes on the logs of the odds, we again find that there is no significant difference between any two groups. If we weight the annualised differences in log-odds by the number of years on which each observation is based, we in fact find that the greatest difference is found in the second group of countries, ie. countries having a "strong partial ban", followed by those with a weak partial ban, then followed by those countries (actually **that** country, since data is available for only one such country) having promotion in all media, and finally, those countries having a total ban!

"It is hoped that these manipulations, all of which are made on a statistical basis which is far more sound than that of the TSB report, help to demonstrate that the way that the data in this table have

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been used in the report is at best simple .... The simple summary of the foregoing is that the TSB case arising from this table rests on **one year of data from Iceland**, a country of about two-thirds the size of Hamilton, out of a total of years for this table of 219 years (nowhere near the 400 claimed in the TSB report). Perhaps here would be an appropriate place to quote from the TSB report:

".... arguments based on one particular country (those against a ban will probably choose Finland, those for a ban will likely choose Norway) solve little. Data from just one country or even a series of individual countries do not prove or disprove that bans reduce consumption." (TSBR p71)

"The TSB report goes on in the very next paragraph to state, in italics, in fact, that:

"Grouping of countries by advertising policy, and knowledge of the effects of incomes and tobacco prices on consumption, enable conclusions to be drawn about the effects of advertising policies. The overall conclusions of this study are robust and will not be upset by including or omitting one country."

"It is disappointing that the TSB appear not to have availed themselves of the considerable scientific and statistical resources available through the Health Department and the Department of Scientific and Industrial Research (DSIR) in an attempt to evaluate the information presented in the report in an objective and scientific manner. It is difficult to believe that anyone could present a table such as Table 7.5.1, relying as it does on one year's data from a country of about 200,000 people, out of 219 years' total data from a number of countries whose population is measured in hundreds of millions, and then state that the conclusions are robust! The term "robust" is a technical term, and the facts of the report directly contradict the technical meaning of the term.

"Table 7.5.1b contains "Percentage yearly reduction in the percent of young people who smoke daily, in 18 countries, according to tobacco advertising policy in force." As with Table 7.5.1a, the column headed "change in percentage points p.a." consists of numbers which have been obtained by looking at the overall percentage change from the beginning of the period to the end, and then dividing by the number of years spanned. The figures analysed here consist of figures obtained from the more appropriate "n-th root" method: for the most part, individual differences will be quite small, but as for the Table 7.5.1a figures, this difference is statistically significant.

"If we subject these data to an analysis similar to that above, we find averages which are markedly different from those quoted in the TSB report. Part of the reason for this is that the figures in Table 7.5.1b have been agglomerated in a different way. These data are quite difficult to interpret, since each "point" corresponds to a different country, age-range and period. How these points should be weighted is therefore unknown, but obviously there should be some allowance made for the size of the population and duration of the "ban" on which each point is based. Treating information from the USA for 17-18 year-olds the same way as information from Belgium on 18-24 year-olds does not seem to be equitable! Nevertheless the TSB report attempts to analyse the data in this way, so this has been

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done here as well. Below is the table of means for the base data:

"Sample number	Sample mean	Standard deviation	Sample size
Total Ban	-3.4018	1.97706	7
Strong Ban	-3.6756	3.14067	7
Weak Ban	-2.46217	2.30968	10
No Ban	0.1108	0.496671	2

"Again, any differences between these groups of countries are not statistically significant; furthermore, nor is there any evidence of a "graduated response" (emphasis added). (Appendix B, Sage, Section 7, p9)

"The first point to note is that, as before, the column headed "consumption change percent p.a." consists of numbers which have been obtained by looking at the overall percentage change from the beginning of the period to the end, and then dividing by the number of years spanned. The resulting figure is not the annual percentage change!"

"Means and standard deviations, calculated according to the categories defined in the TSB report, are shown below.

Sample number	Sample mean	Standard deviation	Sample size
Total Ban	-1.275	1.69583	4
Political Ban	-0.344444	0.561496	9
Strong Ban	-0.35	0.575326	6
Weak Ban	-1.92308	1.53648	13
No Ban	1.58	1.49231	5

"The means in this table are quite different to those reported in Table 7.5.1c in the report; standard deviations, of course, are not reported at all in the report. Note that these statistics were calculated using the TSB's figures for consumption. Here, too, the difference between these figures and those in the report might on their own suffice to indicate that it might be wise to investigate these questions further. Moreover, the "analysis" that these figures have been subjected to in the report was inappropriate and inadequate, in that no attempt was made to evaluate the observed differences in the light of the observed sample variation. **The conclusions reached were unjustified, misleading and a dishonest misuse of statistics"** (emphasis added).

"Applying the "analysis of variance" technique as before, the table of means and standard deviations above is produced, and the comparison of the groups indicates that there is some evidence of a difference between some of the groups. These results, however, are heavily influenced by a very few extreme values, in fact the most extreme value in the table is that from Portugal from the period 1983-1986. Note that this is a very short period, and consequently the estimate of the rate per annum is subject to greater year-to-year variability. If this value is omitted, and the data re-analysed, quite different conclusions are reached. The omission of this point has a marked effect on the analysis, and this clearly shows how dangerous

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it is to place reliance on samples with small numbers of data points, particularly when the data are of such mixed quality. **This is in direct contradiction to the TSB report's assertion that "the conclusions of this study are robust"**, (TSBR p71), (emphasis added). (Appendix B, Sage, Section 7, p11)

Table 7.5.1c

The TSB claim from this table is:

"Total bans on tobacco advertising for health reasons were accompanied by annual average falls in tobacco consumption per adult of 1.6 percent per annum, which is four times faster than in countries with partial bans" (TSBR p65).

Department of Scientific and Industrial Research (Applied Mathematics Division) inform

"Table 7.5.1c gives the annual rates of change in tobacco consumption per adult of varying time periods in several countries. It can be seen that one of the groups - those with a total ban on promotion - containing four countries contains one outlier - Portugal - whose datum has a strong influence on the group mean. In this table the average annual % changes seem to be correctly calculated, ...

"As in ...[7.5.1a, when the data is corrected] one can see that there is no consistent trend between groups, and that the range of values in each group is wide vitiating any further statistical analysis." (Appendix F, DSIR Applied Mathematics Division, p3)

From MH Gamma Consulting Ltd:

"Table 7.5.1c is similarly flawed. Again the TSB conclusion (that tobacco consumption per person has on average fallen faster in those countries where tobacco advertising is banned for health reasons than in those countries where it is not) (TSBR p65), **is dependent entirely on data from one country** (emphasis added); in this case Portugal."

"The TSB quotes an average fall in tobacco consumption of 1.6 percent for the four countries cited as having total tobacco promotion bans for health reasons. This is contrasted with a much smaller fall of 0.4 percent in countries where tobacco advertising is allowed. However, the 1.6 percent fall is derived largely from a large 5.1 percent fall attributed to Portugal between 1983 and 1986. In the other three of the four countries quoted as having a ban on advertising for health reasons (for a much longer period), the consumption fall averaged 0.46 percent (using the simple arithmetic average used by TSB). **The true and obvious conclusion therefore is that in three out of the four cases the advertising ban made no difference whatsoever. The entire TSB case in this paragraph rests on four years data from one small country, coupled with the highly questionable use of unweighted averages. In addition, ... adding one year's data to the Portugal figures produces a remarkably different result.**" (Appendix C, Gamma, p17)

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The Abnormality of the Consumption Data for Portugal in 1986

The TSB findings about the impact of ad bans are, in fact reliant on the data for one country, Portugal. The other three ad ban countries, Iceland, Finland and Norway appear to have suffered unremarkable consumption falls similar to those experienced in many other countries without bans.

However, further scrutiny of the consumption data (TSBR Appendix A, Table 3.2) shows that the abnormality for Portugal is caused by the very low figure for the final year alone, 1986. In 1987 consumption in Portugal rose again back to the level of 1985 according to the TSB data.

> **"Therefore had the analysis for Portugal extended in 1987 the post-ban period would have seen an average annual decline of only 2.1 percent, compared to the 5.1 percent reported to 1986 in Table 7.5.1c.**
>
> "This is dramatically different, and if incorporated into Table 7.5.1c would result in an average decline of -0.9 percent for the total ban group compared to the -1.6 percent previously.
>
> **"Statistically there would be no significant difference between the new consumption trend in this group and those of the other groups where restrictions apply, irrespective of the level of advertising restrictions"** (emphasis added) (Appendix C, MH Gamma, p24).

It is important to note that figures from Tabaqueira, the Portuguese tobacco monopoly show no evidence of the temporary drop in 1986 shown by the TSB report.

Table 7.5.2

Discussion from Sage Consultants Ltd:

> "The data in Table 7.5.2 include the summary statistics from Table 7.5.1c on annual change (percent) in tobacco sales per adult (TSBR p71). As has just been demonstrated, these figures are not only in error in terms of their calculation and underlying data, but have also been analysed in an inappropriate manner, with conclusions drawn from them which are not justified by the data. Since the thrust of Table 7.5.2 is contained in the column of changes in tobacco sales, the arguments on TSBR p97 are meaningless. It is interesting to note the highlighted comment at the bottom of TSBR p97 and top of TSBR p98, to the effect that:

"The overall conclusions of this study are robust, and will not be upset by including or omitting one country."

> **"As has been repeatedly shown above, this is not true: the conclusions of this study are in fact particularly sensitive to the presence or absence of one country, and as a consequence cannot be granted a great deal of credibility** (emphasis added). Again, the TSB report makes no effort to analyse the data in Table 7.5.2, regardless of its lack of quality" (Appendix B, Sage, Section 7, p12).

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Tables 7.5.3a and b

"The figures in Table 7.5.3 relate to the annual growth of filter-tips' market share in 30 advanced economies; as with previous tables, these figures have been calculated in an incorrect fashion, and the means as reported are wrong (TISBR p75). Again, the means are quoted without any accompanying measure of variation, contrary to standard statistical and scientific practice. If one performs an analysis of variance on the correct figures, there does indeed seem to be no significant difference: however, this is a little misleading for a number of reasons. One reason which is immediately apparent is the selective nature of the figures in the table. The results for the "Total ban" group are heavily influenced by the figure for Norway, and similarly the "Promoted in all media" group is heavily influenced by the high figure for Turkey.

"Contrary to the statements within this report, the analysis of variance, which is the standard device for the comparison of means, is indeed quite sensitive to the presence of outliers, particularly in the case where the groups are of unequal size. More importantly, perhaps, the measure of "performance", the difference in compounding interest rates, is quite inappropriate, since by their nature, percentages cannot grow indefinitely, and the growth from 62 percent to 91 percent for Norway, for example, should be compared on a different scale to the growth for Japan from 96 percent to 98 percent!

"Similarly, there are a number of large increases listed for countries having a total ban for political reasons. In these countries, it is clear from Table 7.5.3, filter-tip cigarettes were a rarity in 1971, with Poland for example having only 14 percent of sales of tobacco accounted for by filter-tipped cigarettes. Quite clearly, an exactly similar compounding growth rate applied to the Japanese figure would result in a "Percentage filter-tip" figure of 141 percent! It might be more appropriate to re-cast these percentages on a logistic scale in an effort to remove this inherent bias.

"When the figures are recast in terms of changes on a log-odds scale, it is interesting to note that the figure for Spain, a change from 50 percent to 97 percent, is in fact of greater import on this scale than the change for Turkey, from 18 percent to 79 percent. **This is a good example of how the scale chosen by the Health Department for their study is inappropriate, and can be seriously misleading** (emphasis added). It is clear that there has been a world-wide shift to filter-tipped cigarettes during the period 1971-1986. We would therefore expect any positive effect of advertising to increase market share of filter-tips to show most strongly where there was little share in the first place. The increase in market share experienced by countries having total bans would then be some sort of measure of the global rate unaffected by advertising. If we in fact restrict our attention to those countries where there was initially a market share for filter-tips of less than 50 percent, we find that there is indeed a significant difference on the log-odds scale, showing that those countries having full promotion available had significantly greater increases than the other countries having low initial figures. (The corresponding figures are four total political ban countries, three from weak ban countries, and two from

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open promotion countries.) Thus, contrary to the assertion in the report of the TSB that:

"Advertising bans were, in these years, clearly associated with an increased rate of shift from plain to filter-tip cigarettes",

we find that in fact, **total promotion in all media is positively associated with a statistically significant increase in the rate of shift towards filter-tips among countries where filter-tips are not initially common** (emphasis added). Among other countries, where filter-tips had a market share in excess of 50 percent in 1971, there is no evidence of any influence of advertising in either direction. **In other words, an advertising ban does slow down the adoption of filter-tip cigarettes in immature markets, while its effect in mature markets is undetectable"** (emphasis added).

"The results" part of this section repeats the assertions of the summary at the beginning of the chapter. As we have just seen, these "results" are a gross overstatement of the case, and depend in fact on data coming from one three-year period of consumption for one small country, Portugal. There is no statistical basis for statements about "graduated" responses to advertising bans. Furthermore, there are several statements within this section which do not belong among "results", since they are statements of opinion rather than fact, such as those about the effects of advertising on "young people"" (Appendix B, Sage, Section 7, p13).

WHAT DID THE NEW ZEALAND HEALTH DEPARTMENT STUDY ON ADVERTISING AND INCREASE IN USE OF TOBACCO ACTUALLY FIND?

In the words of Sterling and Associates Ltd:

"We recomputed the relevant sections of Tables of 7.5.1c and 7.5.1a, substituting the correct median for the inappropriate arithmetic means.

"Results of these analyses are quite different from that based on the use of arithmetic means. The reason for that difference is clearly apparent. For instance, take the category of "Total ban on tobacco promotion for health reasons" in Table 7.5.1c. That group of countries experience an average decline in the amount of tobacco used which is quite modest with the exception of Portugal. While the large decline in tobacco use in Portugal may be real, it is certainly not typical for the group of countries that totally banned tobacco promotion for health reasons.

"Once the bias introduced by the use of arithmetic averages has been removed, the emerging results are quite different than before. **In the 33 advanced countries**, the largest decrease in the amount of tobacco used is in countries which permit advertising in most media. **In the 20 countries** with advanced economies the greatest decrease in tobacco use is registered by countries that permit advertisement in a few media and in most media. **In fact countries that permit advertising in all media have a somewhat greater decrease in prevalence of tobacco use than countries that have no advertising at all** (emphasis added).

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"A comparison of the annual percent decrease in the amount and prevalence of tobacco use of countries that differ by advertising ban does not support the conclusion that banning advertising reduces tobacco use. These findings are in line with findings from the four major studies on partial and total bans (The Hamilton study, the BAA study, the WHO review, and the study of the IAA) and so support their conclusions". (Appendix E, Sterling, p8-11)

In Summary

The New Zealand Department of Health study used the incorrect statistical model to compute annual average rate of change in tobacco consumption in relation to tobacco advertising country groups.

The TSB conclusion derived from Table 7.5.1 is that adult smoking has fallen faster in groups of countries with advertising bans.

The argument essentially rests on data from Iceland that shows an atypical fall of 9.5 percent when contrasted with Norway and Finland which also have advertising bans.

The correctly computed average fall of under one percent compares unfavourably with the much larger fall in smoking shown for those countries that allow tobacco advertising.

THE TRUE CONCLUSION TO BE DRAWN FROM TABLE 7.5.1A IS THE PRECISE REVERSE OF THAT DRAWN BY THE TSB.

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Table 7.5.1a

Annual average rates of change in the percentage of adults smoking according to tobacco advertising restrictions in force, 20 advanced economy countries, 1970-86.

Country and year of ban	Age group	Surveyed Years begin	Surveyed Years end	% who smoke begin	% who smoke end	Annual % change per country	Annual % change per group
Enforced tobacco advertising ban							
Iceland 1972	18-69	1985-86		40.0	36.2	-9.5	group
Finland 1978*	15-64	78-86		25.8	25.5	-0.1	average
Norway 1975	16-74	73-86		41.5	34.5	-1.1	-3.6
Portugal 1983	na	83-84		na	23.5	na	
Tobacco promotion in few media							
Belgium	15+	80-87		41.5	32.0	-3.3	group
France	15+	76-83		44	39	-1.6	average
Italy (enforced ban)	14+	80-83		34.9	31.1	-3.6	-2.5
New Zealand	15+	76-86		35	30	-1.4	
Singapore*	15+	77-84		23	19	-2.5	
Sweden*	16+	76-85		38.5	29.6	-2.6	
Tobacco promotion in most media							
Australia*	16+	72-83		38.0	33.5	-1.1	
Austria	15+	72-81		28	27	-0.4	
Belgium	15+	70-79		20.2	21.3	+0.6	group
Canada	15+	70-86		45	32	-1.8	average
Denmark	15+	70-79		57.9	48.9	-1.7	-1.2
FR Germany	15+	70-84		41.7	36	-1.0	
France	15+	70-76		53.1	46.7	-2.0	
Ireland	15+	73-82		43	35	-2.1	
Netherlands	15+	70-86		58.5	38.0	-2.2	
Switzerland	15t	72-81		34.6	37.5	+0.9	
United Kingdom	16+	72-86		46	33	-2.0	
United States	17+	70-86		36.6	26.5	-1.7	
Tobacco promotion in all media							
Greece	15+	85		na	21.5	na	
Japan	20+	70-86		46.6	37.6	-1.2	-1.2
Spain	15+	70-87		na	40.5	na	

KEY:

* Male and female percentage averaged.
* average of two surveys

SELECTION:

All countries and periods for which data were published.

SOURCES:

Rothwell, K and Masironi, R. *Cigarette smoking in developed countries outside Europe*. WHO, 1987.
Rothwell, K, Masironi, R and O'Byrne, D. *Smoking in Europe*. WHO, 1987.
Various other sources - see Appendix 6.

(As reproduced from TSB Report)

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Table 7.5.1c

Annual average rates of change in tobacco consumption per adult, according to tobacco advertising restrictions in force, 33 advanced economy countries, 1970-1986

Country and year ban enforced	Years studied from to	Tobacco consumption g/adult from	to	Average change percent p.a. country	group
Total ban on tobacco promotion for health reasons					
Iceland[a] 1972	72-86	3426	3326	-0.2	
Finland 1978	78-86	2087	2017	-0.4	-1.6 percent
Norway 1975	75-86	2017	1927	-0.8	
Portugal 1983	83-86	2068	1750	-5.1	
Advertising never permitted for political reasons					
Albania[c]	80-86	1254	1183	-0.9	
Bulgaria[c]	80-86	2330	2282	-0.3	
Czechoslovakia	80-86	^2612	2374	-1.8	
East Germany	80-86	2403	2408	0.0	-0.4 percent
Hungary	80-86	3420	3246	-0.8	
Poland	80-86	3529	3558	+0.1	
Romania[c,p]	80-86	2027	2071	+0.4	
Soviet Union[c]	80-86	2106	2149	+0.3	
Yugoslavia	80-86	3269	3102	-0.9	
Tobacco promotion in few media					
Belgium	80-86	3183	3270	+0.5	
France	76-86	2352	2348	-0.02	
Italy	83-86	2306	2226	-1.1	-0.4 percent
New Zealand	70-86	3115	2304	-1.6	
Singapore	70-86	2265	2261	-0.01	
Sweden	70-86	1921	1879	-0.1	
Tobacco promotion in most media					
Australia	70-86	3333	2375	-1.8	
Austria	70-86	2500	2615	+0.3	
Belgium	70-79	3436	3176	-0.8	
Canada	70-86	3990	3253	-1.2	
Denmark	70-85	2537	2542	+0.01	
FRG; W Germany	70-86	2678	2625	-0.1	-0.4 percent
France	70-75	2181	2412	+2.1	
Italy	70-82	1816	2289	+2.2	
Ireland	70-86	3281	2887	-0.8	
Netherlands	70-86	3355	3021	-0.6	
Switzerland	70-86	3789	2865	-1.5	
United Kingdom	70-86	3377	2300	-2.0	
United States	70-86	3936	3187	-1.2	
Tobacco promotion in all media					
Greece	70-86	2570	3999	+3.5	
Japan[c]	70-86	2826	3329	+1.1	
Portugal	70-82	1451	2018	+3.3	+1.7 percent
Spain	70-86	2346	2644	+0.8	
Turkey	70-86	2064	2020	-0.1	

Table continued on following page

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8 *Report of a study on the relationship between government tobacco promotion policies and tobacco consumption trends in 33 countries: a closer look at 15 countries*

8.1 Introduction

Sage Consultants Ltd:

"Chapter Eight (TSBR p78) consists of a subset of the 33 country study, purportedly a closer focus on 15 of the countries. In fact the title of the chapter indicates that these countries were "selected." The selection seems to have been on the basis that the countries were "essentially the same ones reported on by the International Advertising Association (IAA)". Some countries were excluded, however, while others were included. The exclusions were for reasons of "inadequate data", **but it is notable that the Eastern Bloc countries, where we are told that data is inadequate, were included** (emphasis added). An earlier draft of this chapter concentrated on a selection of 16 countries, rather than 15: why has one disappeared? The underlying tenet of this chapter is that the statements of the previous chapter are proven fact: in view of the weakness of the "evidence", and the unscientific nature of the arguments put forward in that chapter, it is tempting to simply dismiss this chapter altogether.

"Comment

"This chapter is particularly difficult to integrate into the whole of the TSB's submission, consisting largely of unconnected anecdotes.

"Graphs purporting to demonstrate the effectiveness of adbans in reducing consumption levels are shown: Figs 8.2.5, 8.3, 8.4.2a, 8.5.2, 8.6.3, 8.8.3. These graphs seem to make it clear that there has been no significant reduction in consumption when compared to the natural year to year variability in consumption levels. The accompanying text argues the converse, that in fact these graphs demonstrate the existence of significant reductions. These graphs, furthermore, are inappropriate statistical tools for displaying information about associations. No attempt has been made to compare changes observed in countries which have enacted adbans with those observed where no adban has been put in place. A basic pitfall in the analysis of epidemiological evidence is the mistaken evaluation of a change as being due to intervention when in fact it has occurred as a matter of natural history - consequently the widespread use of control groups for comparative purposes.

"It is stated in the introduction, section 8.1 that the 15 countries selected for "closer examination" are essentially the same ones reported on by the International Advertising Association. The phrase "essentially the same", of course, means different things to different people, and we find in fact that Thailand and Taiwan were excluded, while Canada and New Zealand were included. It is further stated that "official and completely different data" were used, but the differences are not documented or justified in any way other than the

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raw list in TSBR Appendix 6 (as documentation) and the bald statement and implicit assumption that these data, not subject to referee or peer review, are of higher quality than the data used by the IAA. While it is quite possible that these data are in fact of greater quality, this is certainly not implied by the vague references and assurances of the report, and the amazingly low quality of the "scientific" arguments put forward also fail to encourage confidence.

"The lack of structure and direction in this chapter make it very difficult to follow: there does not seem to be a single, simple thread of argument to follow through." (Appendix B, Sage, Section 8)

Below is a section by section commentary.

8.2 *Tobacco consumption and smoking in Norway*

"This section (TSBR p78-82) compares annual rates of reduction in youth smoking rates between Norway and New Zealand, and states that this reduction was ten times more rapid in Norway than in New Zealand. Comments have been made in Chapter Seven on the adequacy and appropriateness of the measures used by the TSB report for estimating such reductions. **Repetition of a misleading statement does not add to its truth or its persuasiveness** (emphasis added). The actual differences between the countries with respect to these parameters should be compared in the light of annual variability of these figures, and within the context of a whole set of countries.

"Similarly, this section points out (TSBR p79, Table 8.2.2) that the NZ lung cancer rate among women is 73 per 100,000 against Norway's 40 per 100,000. Again, these figures are presented in isolation, with no associated estimate of variability, either within that country, or among countries in the study. The clear implication that the report is trying to convey is that lung cancer rate differences will disappear if an advertising ban is enacted. The TSB had data available on lung cancer rates for all of the countries in the study - why were these data not analysed? In fact, if we take consumption figures from Table 7.5.1c, and lung cancer rates from Table 4.3 of the TSB report, and if we follow the assumption that an adban leads to a reduction in smoking and thereby to a reduction in lung cancer, then we might expect those countries having had an adban in force for some time to display a lower rate of lung cancer, perhaps after adjusting for consumption level." (Appendix B, Sage, Section 8)

Such an analysis makes two things immediately clear:

- "There is little, if any, association between consumption and lung cancer rates

- "The points corresponding to countries having had an adban in place for some time have, if anything, a slightly higher average rate of lung cancer, regardless of the level of tobacco consumption. (The difference is not statistically significant, but the lack of correlation contravenes the conventional view of the authors of the TSB report.)

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"Overall, tobacco consumption in Norway has declined since 1975 (Table 8.2.5 and Figure 8.2.5)" (TSBR p80).

"This "decline" is based on the change between two points in time: a more reasonable way of estimating a rate of decline is to fit a model to the data.

"The model gives an estimate of six grammes per head as the reduction in consumption and the period 1975-1986. According to the model the rate of decrease over the period has been about 0.3 per cent per year, not the 0.9 percent stated in the TSB report. While this particular difference is not particularly large (in absolute terms: it is very large in proportional terms), **it serves to demonstrate the type of error being consistently propagated through the report"** (emphasis added). (Appendix B, Sage, Section 8)

8.3 *Tobacco consumption and smoking in Finland*

"Figure 8.3 (TSBR p83) basically shows that tobacco consumption has been reasonably constant for some time. The TSB report states that this does not indicate a failure or shortcoming of policy. However, this set of data certainly lends no credibility to the claim that a 100 percent drop in advertising will lead to a seven percent fall in consumption. The table of:

"... factors affecting the annual average rates of change in tobacco consumption and smoking, 1976-86",

"Table 8.3.3 (TSBR p85), is again a table presented without any effort at scientific evaluation. The explanations offered are simplistic and no effort has been made to convert these assertions into testable hypotheses." (Appendix B, Sage, Section 8)

8.4 *Tobacco consumption and smoking in Iceland*

"Iceland is the country upon whose experience of adult prevalence of smoking, the TSB's report rests: the year from 1985-1986 showed a change (Table 7.5.1a) (TSBR p68) which the report states is of immense importance, in spite of this being one year of data for a country of about 200,000 people (emphasis added). While the TSB report states that consumption of tobacco per head of population has been decreasing at a rate of one percent per annum since 1975, the usual criticism can be levelled: no model was fitted, no attempt to obtain statistical significance has been made, and the natural variability of the process has been ignored. Figure 8.4.2a (TSBR p87) demonstrates quite clearly that consumption in Iceland has been enormously variable over this period, and the quoted rate of decline is certainly not significant. Interestingly, the report states that for

"... younger Icelandic women, ... lung cancer, rates are higher than for men" (TSBR p86),

yet the percentage of young people smoking in Iceland has been declining since 1974 and possibly before. (Figure 8.4.2b)" (TSBR p87). (Appendix B, Sage, Section 8)

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The anomalies regarding Iceland have been dealt with extensively in Section 7 of this review (See p66 and 68).

8.5 *Tobacco consumption and smoking in Italy*

> "In Italy (TSBR p89), too, the level of consumption of tobacco has remained fairly constant for some years, adding fuel to the notion that most countries are having similar experiences, regardless of the presence or absence of an advertising ban, and adding weight to the idea of fitting one overall model to the data from all countries, and then looking for departures from that model for specific countries. This is of course the usual way that a statistician might approach the analysis of such a body of data ... Figure 8.5.2 (TSBR p90) demonstrates the same sorts of patterns of general stability of level and variability about that level as the other countries displayed." (Appendix B, Sage, Section 8)

8.6 *Tobacco consumption and smoking in Singapore*

> "Figure 8.6.3 (TSBR p93) is quoted as supplying evidence to back the TSB's claim that tobacco consumption

"... really began to fall markedly after ... 1984. By 1986, tobacco consumption had finally returned to 1970 levels" (TSBR p91).

> "The implication from this is that tobacco consumption has reacted in a smooth predictable way to the imposition of advertising and pricing controls. However, a glance at Figure 8.6.3 suffices to show that tobacco consumption in Singapore has been a natural process displaying a great deal of year-to-year variability, and the supposed decline in consumption is more imaginary than real. Again, there is no statistical evidence of a change in level of tobacco consumption." (Appendix B, Sage, Section 8)

8.7 *Tobacco consumption in Eastern European countries*

> "Again, the writers of the TSB report have seen fit to interpret small changes as being in some sense significant, and we are told that

"... increasing ... health warnings on cigarette packets, have been able, ... to discourage tobacco consumption in five of the nine countries" (TSBR p94).

> "The evidence to back up this statement consists of the data contained in Table 8.7.3 (TSBR p95), on consumption per adult over the period 1980-1986. If these data are analysed in a sensible manner, it is plainly seen that:
>
> i) None of these countries shows a significant downward trend over this period.
>
> ii) None of these countries shows a different rate of decline of consumption to any other in this group.
>
> iii) The model which postulates a stable state for the time series of consumption over this period fits the data as well as any model which postulates a fall in consumption.

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iv) The value for Bulgaria in 1984 is a massive outlier:

"The statements made in the "Results and Discussions" of this section suffer from similar maladies to the rest of the report: there is a tacit assumption that any evidence of a statistical association is evidence of a causal relationship, and furthermore, that such relationships can be applied across country and time-period borders without modification. Hence we have statements such as

"Income per capita rose at 5.5 percent per year between 1975 and 1985, which would be expected to raise tobacco consumption per adult by 2.5 percent per year. In fact it rose only 1.1 percent per year in this period" (TSBR p94).

"Again, we have no confidence interval for the estimate of "2.5 percent per year", and no idea whether or not the observed 1.1 percent is within the predicted range! These problems are simple technical problems." (Appendix B, Sage, Section 8)

8.8 *Tobacco consumption and smoking in New Zealand*

"Figure 8.8.3 (TSBR p97), the display (barchart) of "New Zealand, tobacco: advertising restrictions, affordability and consumption per adult, 1970-86" **is the only set of data in this chapter which does show a statistically significant decline in tobacco consumption over the past ten years or so** (emphasis added). This has happened without the "benefit" of an advertising and promotion ban ... Again, the Health Department in drawing up this data have made no attempt to fit a model to the data, or to combine the New Zealand data with data from other countries into a bigger model. ... it is vital that this type of approach be made in order to get better estimates of the residual variances and of the effects of the known shocks.

"The section and chapter concludes with the statement that

"... advertising controls along with price increases can, on annual data, explain most of the variance in year-to-year tobacco sales in New Zealand" (TSBR p98).

"Presumably this refers to the results of the Chetwynd paper, where a model having a large number of parameters was fitted to a dataset containing 13 data points, and the model was then used to extrapolate to a 100 percent fall in advertising expenditure. This is somewhat akin to saying that a straight line fitted to a group of three points explains most of the variability: adding one more parameter will explain **all** of the variability, **but this makes the model less convincing, not more** (emphasis added).

"There is a subsequent statement that the elimination of tobacco advertising **would** result in the **likely** further permanent substantial fall in national tobacco consumption. There is no supporting evidence for this statement, and in particular, there is no substantiation or elaboration of the words "likely", "further", or "permanent"." (Appendix B, Sage, Section 8)

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Sage summarises as follows:

- **"the questions which generated the (Health Department) study were poorly framed**
- **"the data which were gathered in an attempt to answer the questions were inadequate**
- **"the analysis to which these data were subjected were inappropriate and inconclusive**
- **"and the standard of reporting of these "results" was consistent only in its inconsistency ...**

"We conclude with a quote from May (May WW. "The composition and function of ethical committees". J Med. Ethics 1:23-9, 1975):

> "A poorly designed or conceived experiment is unethical by definition and should not be permitted. Further it is the responsibility of the review committee to ensure that the conception and design meet the accepted canons of scientific method."

"... The conclusion that the TSB have ignored their scientific responsibilities is encapsulated by the statement:

"(4) *No government agency should feel it must prove that tobacco promotion causes young people to begin smoking before it will consider steps to eliminate such promotion.*

"Action is justified because smoking causes ill-health on a large scale and because young people are continuing to take up smoking" (TSBR p109).

"So we see that **scientific**, (emphasis added) evaluation of whether the imposition of a ban on the promotion of tobacco products affects consumption was never under consideration ..." (Appendix B, Sage, Section 8)

A Re-Analysis of the "Health or Tobacco" Multi-Country Study

One of the greatest weaknesses of the TSB report is its consistent refusal to approach the key data (in Tables such as 7.5.1a and 7.5.1b, and Tables A3.1 and A3.2) in a statistical fashion. Taking such a modelling approach it would be possible to include the information on the "Tobacco advertising control score" in a realistic way.

"Presumably the TSB .... had at its disposal the services of statisticians who are capable of performing such analyses ... so, the question arises: why isn't such an analysis reported? Two possibilities present themselves for consideration:

(i) This analysis was performed, but the results were **not** (emphasis added) in accord with the desired outcome.

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(ii) This analysis was not performed as the TSB was not interested in approaching these questions from a scientific standpoint: ...

"In the words of the TSB report (p61), the presence of these deficiencies "casts doubt on the seriousness of this study, apart from for lobby purposes" (sic).

"Presumably the TSB, comprising as it does a majority of members with "scientific" qualifications, has been assembled on the grounds that a pool of scientific expertise exists, necessary to evaluate studies of this nature. In view of the fact that the members have been appointed by the Government, in the public interest and paid for by taxpayers' funds, it is surprising and disappointing that the resources available to the TSB appear not to have been used in evaluating the arguments, or evaluating them properly." (Appendix B, Sage, Section 7, p6).

MH Gamma **have** conducted a simple cross-sectional econometric model (Appendix C, MH Gamma, p32-36, p57-58). The purpose was "to examine the extent to which the differential effects of price and income are able to explain the consumption changes in the context of the different levels of advertising restrictions".

Briefly the modelling approach was as follows:

The stated purpose was to seek to explain the changes in consumption reported in the Health Department study and accepted by the TSB as a function of:

1) the real price change of cigarettes in the country (from the report)

2) The real income per capita change (OECD private consumption)

3) the advertising restrictions classifications (from the report)

4) a possible constant (indicating an autonomous trend)

All change factors are calculated as in the TSB report and the model was linear in form in the spirit of the TSB work. The technical details of the model and the results are given in Appendix 5 of the MH Gamma Report. (Appendix C, MH Gamma, p57-58).

Greece was excluded as there was a peculiarity with the price/consumption relationship, possibly because of the very low absolute price of cigarettes in that country until recently.

Portugal was excluded because of the abnormality of the data as already commented on. (See p70-71))

Therefore, there were 25 observations in all.

The results showed that the model was very satisfactory in terms of the statistical test criteria.

"The model demonstrated that the vast majority of the difference in country to country trends in consumption could be explained on pure economic grounds alone" (emphasis added). (Appendix C, MH Gamma, p32)

MH Gamma concluded (p34-35) as follows:

"The potential effect of different advertising restrictions was probed extensively, but it was not possible to establish any statistically significant impact on consumption of increasing

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control of tobacco advertising. No firm evidence was found for the differential impact of advertising restrictions.

"After allowing for the identified price and income effects there was no statistically significant difference between consumption trends in countries with a total ban, those with heavy restrictions and those with few restrictions.

"The direct implication for New Zealand is clear. It already has restrictions and was included in the TSB analysis in the "tobacco promoted with few media" category. The evidence implies that any further restrictions would have no effect, based on this further analysis of the data of the Department of Health study.

"In general terms, the conclusion is that the differences in the trends of cigarette consumption in different countries are related to economic factors, not to advertising restrictions, even when there is an advertising ban.

"Unfortunately it was not possible to examine the relationship between the "advertising control score" described in the report and consumption, because very little information on the individual countries scores was provided. Only averages, as in Table 7.5.2, and some other scores are shown. The score itself is a very crude indication of restrictions and the lack of weighting of the components is an obvious error. However it is still surprising that information was not provided as it is clearly considered important by the authors of the TSB report.

"However, the strong indication from the results here is that there is likely to be no significant relationship between consumption trends and the score after due allowance is made for economic considerations" (emphasis added).

Finally:

"Conclusions on the Effectiveness of Advertising Bans in Controlling Consumption

"The (MH Gamma) work reported here has rigorously re-examined the data presented in the "Health of Tobacco" report. The finding is that there is no valid statistical evidence to support the view that increasing advertising restrictions have an effect on consumption".

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PART III

POLICY IMPLICATIONS

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This part of the TSB report deals with the following topics.

9. *Smoking and tobacco promotion - the necessity for comprehensive health policies.*
10. *Public opinion in New Zealand on tobacco advertising and sponsorship.*
11. *Tobacco promotion - principles and recommended policies.*
12. *Estimated effects of the elimination of tobacco promotion.*

Comment on "policy implications" does not sit appropriately in a document which is an independent scientific review. (In making this statement it is not to be taken that the Tobacco Institute of New Zealand accepts any statements made in pages 103 to 116.) Separate documentation, which along with this review forms part of the total submission, covers these points.

It is, however in terms of public policy, appropriate to draw attention to the following points:

- Throughout the Report the Board naively assume that it is possible to identify a specific number of deaths that (they claim) are caused by cigarette smoking. It is certainly possible to estimate the annual numbers of deaths from the so-called smoking-associated diseases. However, it is not possible to determine whether any of these deaths could be stated to be caused by tobacco smoking or, if so, how many.
- The authors of the TSB report have made some fundamental assumptions about how advertising works. These assumptions are almost all demonstrably wrong. The TSB report betrays a total lack of understanding of how consumer markets operate, and the role of advertising in those markets.
- The TSB report contains a number of incorrect statistical practices. In several important analyses the use of totally inappropriate statistical techniques leads the TSB to draw conclusions that are precisely the reverse of what is demonstrably true.
- Once the **correct** statistical techniques are applied to the TSB data base the proper conclusion to have reached would have been that countries which permit advertising in all media have a somewhat greater decrease in tobacco use than countries that have no advertising at all.
- As regards the situation in New Zealand, tobacco consumption has already fallen faster than in any country that has instituted a tobacco advertising ban since 1975, the date of the Norwegian tobacco advertising ban. This analysis of the TSB report demonstrates that further restrictions on tobacco advertising in New Zealand would have no measurable impact on tobacco consumption.

Finally, the TSB report is full of untenable assumptions, misleading data, and faulty statistical methodology. Individually, these various criticisms invalidate large sections of the TSB report. **Collectively, they indicate that the Report's conclusions cannot be regarded as a reasonable basis for public policy decision making.**

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APPENDICES

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